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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,243	03/15/2001	Michael Charles Milner Cockrem	2027.602000	5401

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EXAMINER	
MANOHARAN, VIRGINIA	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/809,243	COCKREM ET AL.	
	Examiner	Art Unit	
	Virginia Manoharan	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The abstract of the disclosure is objected to because of the inclusion of legal phraseology normally used in patent claims such as: the numerously recited "comprising" and "comprises". See e.g., lines 3, 5, 10, 13 and 15. Correction is required. See MPEP § 608.01(b).

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors e.g. typographical grammar, idiomatic, syntax and etc. Applicants' cooperations are requested in correcting any errors of which applicants may become aware in the specification.

Claims 1-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A). The claimed " heating at least one of the feed stream, the azeotroping agent.." recited e.g., in claim 1 provides for ambiguity because the claim initially recites mixing them. The claim is also incomplete without the process connection between the mixing and the heating step.

B). The claims are indefinite and/ or incomplete because an azeotrope is normally defined by its pressure and composition, but which parameters are not specified in the claims.[An artisan knows that both the weight percentages and the boiling points of a component of an azeotrope composition are subject to change when the composition is subjected to boilings at different pressures such that an azeotrope must be defined in

terms of the compositional ranges of the components or in terms of the exact weight percentages of each component of the composition defined by a fixed boiling at a specified pressure].

C). The inconsistent used of terminologies in the claims is improper. For example: the numerously recited "the azeotroping agent' as opposed to the initially recited "at least one azeotroping agent". See e.g., claim 1 line 11 and line 6 respectively.

D). It is not seen how an azeotrope is formed by the mere step of "adjusting the temperature of the first vapor stream" as recited in claim 11. An azeotrope is normally formed by e.g., a distillation process, a known unit of operation.

E). The claimed "at least one first azeotrope comprising the organic and the azeotroping agent" lacks proper antecedent support when the feed stream is the one heated with the recitation of "...heating at least one of the feed stream..." in claim 1. (Underlining supplied).

F). In claim 8, the term _further-should be inserted prior the "comprises" recitation since the "at least one impurity" is not initially recited in the base claim 1.

G). In claim 11, last line, reciting "a second bottoms stream" is ambiguous without reciting-a first bottoms stream-.

H). Claim 25 "fermentation broth" is at odds with claim 1 "feed stream", the claim from which it depends.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-58 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-54 and 1-64 of copending Application No. 09/809,534 and 809, 649 respectively. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method steps of the instant claims are covered in the process of the above copending application and vice versa. The difference seen is in the constituent of the feedstream. However, said difference is deemed not to constitute a patentable distinction inasmuch as the fluid-in-process is not the basis of patentability of the process itself.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-58 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-54 and 1-64 of copending Application No. 09/809,534 and 809,649 respectively. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that

copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: the mixing of a feedstream and at least one azeotroping agent; the heating of the at least one of the feedstream, the azeotroping agent or the mixture thereof thereby producing a first vapor stream comprising one of the feedstream and the azeotroping agent and separating the first vapor stream from the mixture.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 8-12, 19-24, 30-48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over anyone of Baniel et al (6,187,951) , Mercier (4,100,189) or Horlenko (3,718,545) in view of Izard (3,419,478) or Benecke et al (5,319,107).

Anyone of Horlenko , Mercier or Baniel discloses substantially the process or method steps as claimed. The process of anyone of the above references differs from the claimed invention in that the claims recite producing a first vapor stream that comprises at least one first azeotrope comprising the organic acid and the azeotroping agent. However, Izard, or Benecke et al teaches that forming the above azeotrope is a known expediency in the art. See e.g., col. 1 lines 35-39 of Izard; and the disclosure at col. 58, lines 55-64 of Benecke et al. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the above teachings of Izard or Benecke et al to the process of Baniel, Horlenkol or Mercier inasmuch as Baniel, for example, suggests at col. 13, lines 25-55 that an organic acid such as lactic acid can be separated or recovered by a distillation method.

Claims 7, 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baniel et al, Horlenko or Mercier in view of Izard or Benecke et al as applied to claims 1-6, 8-12, 19-24, 30-48 and 50 above, and further in view of Tcherkawsky (3,432,401) or Iffland (5,945,560).

Baniel, Mercier or Horlenko does not positively recite forming an heterozetrope, but otherwise teaches or suggests the method/process as claimed. However, since the volatile component of Horlenko is comprised of the organic acid, azeotroping agent and water, it would at least be suggestive of an heteroazeotrope formation. This is evident

from Tcherkawsky's showing in the drawing or in Iffland et al suggestion at col.7, lines 19-39 that said azeotrope constitute an heteroazeotrope. To incorporate Tcherkawsky or Iffland et al showing or suggestion to the process/method of anyone of the above references would have been obvious to one of ordinary skill in the art, at the time the invention was made, inasmuch as all the references are directed to the same processing environment, i.e., to an azeotropic distillation process of an organic acid . Claims 25-29, 49, 51-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over anyone of Horlenko, Baniel, or Mercier as applied to the above preceding claims , and further in view of Kulprathipanja et al (5,068,418).

It would have been obvious to one of skill in this art at the time this invention was made to use a feedstream comprising fermentation broth that is concentrated, acidified and de-catonized as claimed in the process/method of anyone of the above primary references as such is conventionally done in the art as taught e.g., at cols. 15-16 of Kulprathipanja et al

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Baniel et al '526 and WO '850 both discloses a separation and recovery process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is (571)

272-1450. The examiner can normally be reached on Tuesday-Friday from 7:00a.m to 6:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9311.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manoharan/tgd

March 16, 2004